



Australian Bureau of Statistics

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Resources



MAT 13 – Creating Parallel Box and Whisker Plots in Excel

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Subject Area

Mathematics

Overview

This document details how to use the scatter plot feature of Excel to create box and whisker plots, both singly and in parallel. By calculating the 5 figure summary for a set of data, the minimum, quartile 1, median, quartile 3 and maximum values can be pasted into a template to create the plots.

Requirements

- Excel

Instructions

Parallel box and whisker plots can be drawn in Excel once the 5 figure summary statistics have been calculated. This can be done by hand or using formulae in Excel.

To calculate 5 figure summary statistics in Excel

Step 1. Copy and paste your data set into an Excel worksheet.

Step 2. Next to your data set up a table in which to record your results.

minimum	
Q1	
median	
Q3	
maximum	

Step 3. In the cell next to minimum type =min(
Select your data, or enter the range of cells e.g. (B2:B20) and Enter

Step 4. Repeat for median and maximum by typing =median(and =max(
respectively into the appropriate cells.

minimum			
Q1	=quartile(		
median	QUARTILE(array, quart)		
Q3			
maximum			

To create a box and whisker plot using Excel

A box and whisker can be created by using the scatterplot feature in Excel. Scatterplots with lines will connect adjacent coordinate pairs with a straight line. Where a space is left between pairs, the line will not connect.

Table 1 below sets out the principles behind and template for a box and whisker plot.

Step 1. Copy the table into your existing Excel worksheet or create a new one.

Step 2. In the 3rd column replace 'min, Q1, med, Q3 and max' with their calculated values.

Step 3. To draw a single plot, select the data in the x and y columns only. You should have 9 pairs. This will enable the plot to be drawn with 5 vertical and 4 horizontal lines.

Step 4. Go to Insert and select 'Scatter with Straight Lines'.

Step 5. Remove Vertical axis in the Layout tab under axis.



box and whisker plot 1		x	y	
Vertical bars 1	min top	min	3	
	min bottom	min	1	
2	Q1 top	Q1	3	
	Q1 bottom	Q1	1	
3	med top	med	3	
	med bottom	med	1	
4	Q3 top	Q3	3	
	Q3 bottom	Q3	1	
5	max top	max	3	
	max bottom	max	1	
Horizontal bars 1	box top left	Q1	3	
	box top right	Q3	3	
2	box bottom left	Q1	1	
	box bottom right	Q3	1	
3	left whisker minimum	min	2	
	left whisker maximum	Q1	2	
4	right whisker minimum	Q3	2	
	right whisker maximum	max	2	end of plot 1
box and whisker plots 2	all x labels remain	min	6	all y values need to
and 3 and so on	the same as for plot1	min	4	be 3 more for plot 2,
				6 more for plot 3 and so on
		etc.	etc.	

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Table 1: Box and whisker plot template

To create parallel box and whisker plots

Parallel box and whisker plots can be created progressively above the first box and whisker plot by adding to the template in Table 1.

Step 1. Leave one empty row. Copy and paste the single plot template paste it below the last coordinate pair.

Step 2. Replace the labels in column 3 with the 5 figure summary statistics for the second data set. Do not change the first data set.

Step 3. In column 4 input a value 3 more than the y value for the first box and whisker plot.

Step 4. Now select all x and y data and insert scatter plot with lines once more.

Step 5. To add more box and whisker plots repeat the last three steps.

Downloads

Student Worksheet

RTF

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